

## Product Evaluation

RWA02 | 0121

Engineering Services Program

The following product has been evaluated for compliance with the wind loads specified in the International Residential Code (IRC) and the International Building Code (IBC).

This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.

This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code, and the Texas Engineering Practice Act.

For more information, contact TDI Engineering Services Program at (800) 248-6032.

**Evaluation ID:** RWA-02

**Effective Date:** February 2021

**Re-evaluation Date:** January 2025

**Product Name:** Translucent Daylighting Panels, Impact Resistant

**Manufacturer:** Kalwall Corporation, Inc.  
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P.O. Box 237  
Manchester, NH 03105-0237  
(603) 627-3861

### General Description:

The Kalwall translucent daylighting panels are 2-3/4" thick translucent daylighting panels that are factory assembled flat or curved, structural composite sandwich panels. The construction of the panel is formed by permanently bonding specially formulated, fiberglass-reinforced translucent faces to a grid core constructed of interlocked, structural aluminum/composite, thermally broken I-beams. The translucent daylighting panels are impact resistant. Larger openings can be formed by adding panel modules together.

### Product Dimensions:

System	Overall Size	Maximum Panel Size	Maximum Nominal Grid Size
1	144" x 120"	46-1/2" x 118-1/2"	12" x 24"
2	144" x 96"	46-1/2" x 94-3/8"	12" x 24"

**Product Uses:**

The Kalwall 2-3/4" translucent daylighting panels may be used for wall systems, curtain walls, window systems, skylights, walkways, and canopies.

**Panel Construction:** The panels consist of an interior sheet of 0.045" thick Kalwall White S-171 fiberglass and an exterior sheet of 0.052" thick Kalwall White Hi-Impact SW fiberglass for System 1 and a 0.070" thick Kalwall SW fiberglass for System 2. The panels overall thickness is 2-3/4" with a 2-5/8" hollow that utilizes a grid reinforcing system. The grid reinforcing system is comprised of extruded aluminum flanges with fiberglass sheets to create an "I" beam. The perimeter of each panel system utilizes the same "I" beam construction with mitered corners. Four 6" wide x 2-1/4" high fiberglass sheets are used as reinforcement at the top and bottom perimeter of the panel. These fiberglass sheets are spaced 10" on center and held in place by the perimeter "I" beams and one pop rivet in the center of each sheet. A bent plastic sheet, 2-3/4" wide by 2-1/4" high is used in each perimeter corner held in place by the perimeter "I" beams and two pop rivets. Continuous vertical "I" beams span the height of the panels and are spaced 11-1/2" on center. The horizontal "I" beams are spaced 23-1/2" on center. They are interlocked with the vertical "I" beams. The exterior and the interior fiberglass panels are attached to the grid system with adhesive.

**Frame Construction:** The frame construction consists of a two-piece aluminum clamp channel system with interior and exterior aluminum extrusions. The extrusions are secured with No. 14 x 1" stainless steel screws from the exterior. The fasteners are spaced approximately 6" on center and 3" from the ends on the top and bottom horizontal frame members and 6" on center and 4" from the ends on the vertical perimeter members. The two center vertical members are secured with No. 14 x 1-1/4" stainless steel screws located 16" on center and 3" from the ends on the two center vertical members.

**Product Identification:**

**System 1:** A label is affixed to the perimeter of the daylighting panels. The label includes the product name (Kalwall Translucent Panel); the manufacturer name (Kalwall Corporation); the design pressure rating ( $\pm 60$ ); the test standards: ASTM E 330-14, ASTM E 1886-13a, and ASTM E 1996-14a; and the missile level (Missile Level C).

**System 2:** A label is affixed to the perimeter of the daylighting panels. The label includes the product name (Kalwall Translucent Panel); the manufacturer name (Kalwall Corporation); the design pressure rating ( $\pm 80$ ); the test standards: ASTM E 330-14, ASTM E 1886-13a, and ASTM E 1996-14a; and the missile level (Missile Level A).

**Limitations:**

**Design pressures:**

System	Maximum Nominal Panel Width	Maximum Height	Design Pressures (psf)
1	48"	120"	$\pm 60$
2	48"	96"	$\pm 80$

**Allowable Width of Assembly:** Larger openings can be formed with multiple panel widths. The maximum nominal panel width must not exceed the dimensions in the table above. The maximum height of the assembly (distance between structure supports) must not exceed the dimensions in the table above.

**Impact Resistance:**

**System 1:** The daylighting panel assembly satisfies the Texas Department of Insurance's criteria for protection from windborne debris. The assembly passed Missile Level C specified in ASTM E 1996-14a. The daylighting panels may be used for basic protection in areas where the basic ultimate wind speed is less than 150 mph. The daylighting panel assembly may be installed at any height on the structure as long as the design pressure rating for the daylighting panel assembly is not exceeded.

**System 2:** The daylighting panel assembly satisfies the Texas Department of Insurance's criteria for protection from windborne debris. The assembly passed Missile Level A specified in ASTM E 1996-14a. The daylighting panel assembly must be installed on the structure at a height of 30 feet or greater measured from grade as long as the design pressure rating for the daylighting panel assembly is not exceeded.

**Acceptance of Smaller Assemblies:** Assemblies with dimensions equal to or smaller than those specified above are acceptable within the limitations specified in this report.

**Wall or Roof Bracing:** The daylighting panels must not be used as lateral bracing for walls or as a diaphragm for a roof. A separate wall bracing system must be provided in the plane of the assembly to resist lateral loads.

**Minimum Roof Slope:** The daylighting panels must not be installed on roofs with a slope less than 2:12.

**Installation:**

**General:** The daylighting panel assembly must be installed in accordance with the manufacturer's installation instructions and detailed design drawings that have been prepared for the installation. Detailed design drawings and installation instructions are available from the manufacturer.

**Design Drawings:** The daylighting panel assembly is custom designed for each installation. A set of detailed design drawings, prepared by Kalwall Corporation, will be developed for each installation. The daylighting panel assembly must be installed as specified on the design drawings. The design drawings must be provided with the daylighting panel assembly. Each page of the design drawings must be signed, sealed, and dated by a Texas licensed professional engineer. The following minimum information must be specified on the design drawings:

- The design pressure rating for the assembly;
- The design complies with the 2018 International Building Code (IBC);
- The design complies with ASTM E 1886-13a and ASTM E 1996-14a;
- The missile level rating for the assembly

- The design complies with ASTM E 283-04(2012), ASTM E 331-00(2012), and ASTM E 330-14;
- The material properties for the substrate.
- The size and types of fasteners required to anchor the system to the substrate.

The design drawings must include the fully dimensioned daylighting panel assembly. The dimensions of the daylighting panel assembly must not exceed the allowable dimensions specified in the Limitations Section of this evaluation report. The design drawings must include details for the attachment of the perimeter frame to the support structure, the attachment of the intermediate supports (mullions or rafters) to the support structure, the construction of the perimeter frame, the panel construction, the construction of the grid reinforcing system, and the attachment of the panels to the grid reinforcing system. All details must be fully labeled and must include all components, material specifications, part numbers, and required fasteners. Fasteners required to secure the perimeter framing of the daylighting panel assembly to the support structure framing are specified below.

**Installation:** The structure support framing must be minimum Southern Yellow Pine dimension lumber. The interior vertical frames are secured to the wall framing with minimum No. 14 x 2" screws spaced approximately 2" from each end and approximately 6" on center. The horizontal interior frames are secured to the wall framing with minimum No. 14 x 2" screws spaced approximately 2" from each end and approximately 6" on center. All screw penetrations into the structure support framing must be sealed with silicone sealant. Note: Alternative substrates and fasteners may be utilized. Fasteners and substrates must be designed to transfer the design loads from the system into the substrate. The design drawings must specify the material properties for the substrate and the type, size, and spacing of the fasteners used as well as the minimum penetration depth and the minimum edge distance for the fasteners. Fastener spacing must not exceed the fasteners spacing specified for the Southern Yellow Pine substrate specified in this evaluation report. Alternative substrates, fasteners, and fastener spacing must be justified through analysis.

**Note:** Keep the manufacturer's installation instructions available on the job site during the installation. Use corrosion resistant fasteners as specified in the IRC and the IBC.